USER MANUAL

DCM-604

VERSION 2.0

D-Link®

BROADBAND

FCC Statement

This device complies with Class B Part 15 of the FCC Rules. The device generates, uses and can radiate radio frequency energy and, if not installed and used as instructed, may cause harmful interference to radio communication. Only Coaxial cables are to be used with this device in order to ensure compliance with FCC emissions limits. Accessories connected to this device by the user must comply with FCC Class B limits. The manufacturer is not responsible for any interference which results from use of improper cables, or which results from unauthorized changes or modifications to the device.
"A Minimum 26 AWG Line Core should be used for connection to the cable modem"

Warranty

Items sold by manufacturer/distributor/agent, hereinafter called "Seller", are warranted only as follows: Except as noted below Seller will correct, either by repair or replacement at its option, any defect of material or workmanship which develops within one year after delivery of the item to the original Buyer provided that evaluation and inspection by Seller discloses that such defect developed under normal and proper use. Repaired or replaced items will be further warranted for the unexpired term of their original warranty. All items claimed defective must be returned to Seller, transportation charges prepaid, and will be returned to the Buyer with transportation charges collect unless evaluation proves the item to be defective and that the Seller is responsible for the defect. In that case, Seller will return to Buyer with transportation charge prepaid. Seller may elect to evaluate and repair defective items at the Buyer's site. Seller may charge Buyer a fee (including travel expenses, if needed) to cover the cost of evaluation if the evaluation shows that the items are not defective or that they are defective for reasons beyond the scope of this warranty.

The Seller makes no warranty concerning components or accessories not manufactured by it. However, in the event of failure of such a part, Seller will give reasonable assistance to Buyer in obtaining from the manufacturer whatever adjustment is reasonable in light of the manufacturer's own warranty. Seller will not assume expense or liability for repairs made outside the factory by other than Seller's employees without Seller's written consent.

SELLER IS NOT RESPONSIBLE FOR DAMAGE TO ANY ASSOCIATED EQUIPMENT, NOR WILL SELLER BE HELD LIABLE FOR INCIDENTAL, CONSEQUENTIAL, OR OTHER DAMAGES. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING THE IMPLIED WARRANTY OF "MERCHANTABILITY" AND "FITNESS FOR PARTICULAR PURPOSE."

Trademarks

All trademarks are the property of their respective owners.

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1. Introduction

This is a complete DOCSIS 2.0/EuroDOCSIS2.0 compliant cable modem integrate with VoIP product. It works with all existing DOCSIS/EuroDOCSIS 2.0/1.1/1.0 compliant head-end equipment and Multiple Service Operator (MSO) networks.

Features

- PacketCable 1.5 standard compliant
- DOCSIS /EURODOCSIS 2.0 standard compliant.
- Support PacketCable MGCP (Media Gateway Control Protocol)
- SIP (Session Initiation Protocol) compliant
- 4 standard RJ45 connector for fast Ethernet with auto-negotiation MDIX functions
- USB 1.1 Device
- Two Rj11 Foreign Exchange Station (FXS) ports for IP telephony
- QoS enhancement
- MSO SNMPv3 remote network management
- Provide MIBs DOCSIS 1.0/1.1/2.0
- Support simultaneous voice and data communications
- Echo Cancellation
- Voice Active Detection (VAD)
- Comfort Noise Generation (CNG)
- Web Browser Management auto detect network status
- Build-in IEEE802.11n module as AP with miniPCI form factor

System Requirements

- IBM Compatible, Macintosh or other workstation supports TCP/IP protocol.
- An Ethernet port supports 10Base-T/100Base-TX Ethernet connection or USB-equipped PC.
- Subscribed to a Cable Television company for Cable Modem services.

Unpacking and Inspection

Included in the kit is the following:

- 1 x EMTA DCM-604
- 1 x Quick Installation Guide
- 1 x RJ-45 CAT 5 Cable
- Power Supply 12 V/1.0A Switching Power Adaptor 1 each
- 1 x Manual & USB Driver CD-ROM
- 1 x Telephone Cord

If any of above items lost or damaged, please contact your retailer or ISP for assistance.

Safety Precautions

For your protection, observe the following safety precautions when setting up and using your equipment. Failure to observe these precautions can result in serious personal injury and damage to your equipment.

- Make sure the voltages and frequency of the power outlet matches the electrical rating labels on the AC Adapter.
- Do not place any object on top of the device or force it into a confined space.
- Never push objects of any kind through openings in the casing. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electrical shock, or damage to the equipment.
- Whenever there is danger of lightning, disconnect the power cable and the Hybrid-Fiber Coax cable from the cable modem to prevent damage to the unit. The use of an AC protection device will not completely protect the cable modem product from damage caused from the transmission across the Hybrid-Fiber Coax network.

2. Hardware Overview

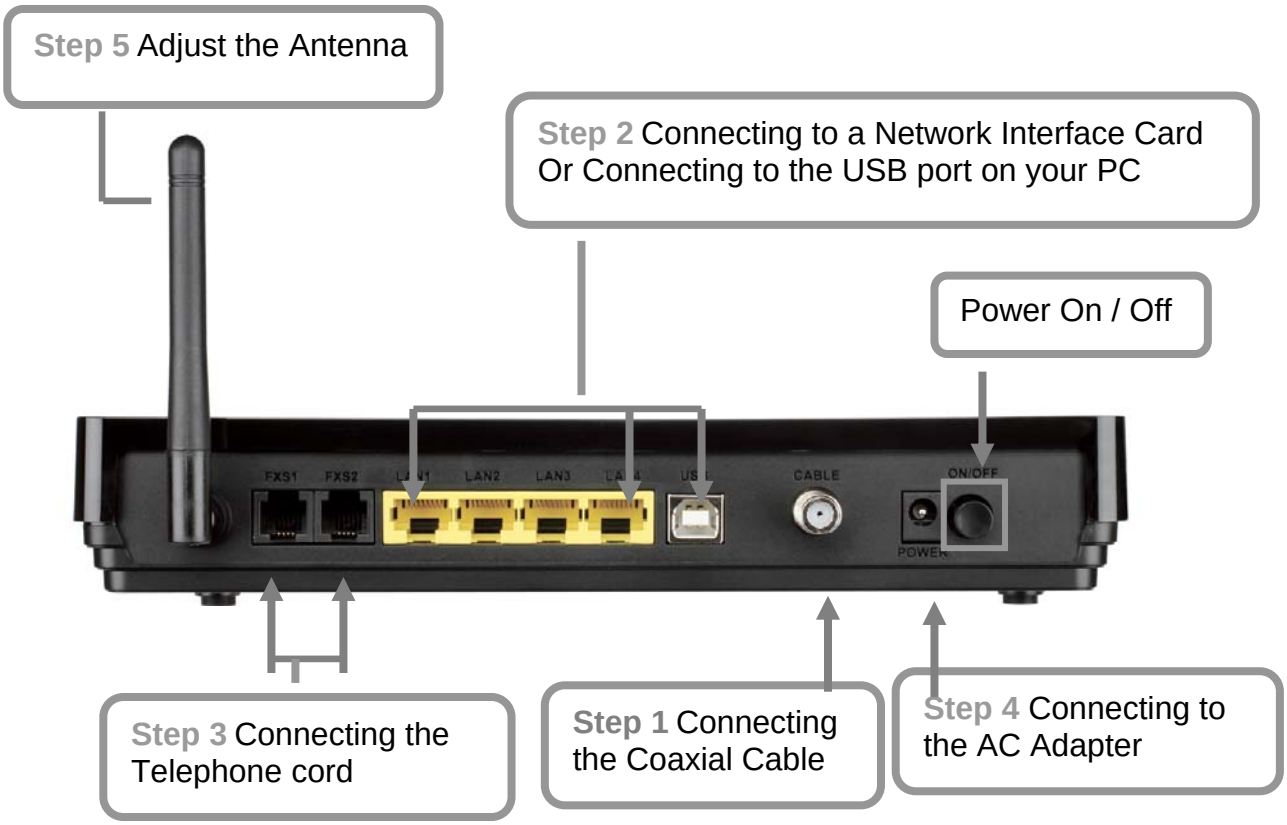
Front Panel and LEDs

There are nine Light-Emitting-Diodes (LEDs) located on the front panel provide status information to the users.

LED	NAME	COLOR	MODE	STATUS
	Power	Green	On	Connected with power
			Off	Power failure or disconnect
	Online	Green	Blinking	TFTP/DHCP in process
			On	Cable connected
			Off	Cable disconnected
	Upload	Green	Blinking	Upstream in process
			On	Upstream Data traffic
			Off	Without data
	Download	Green	Blinking	Downstream in process
			On	Downstream Data traffic
			Off	Without data
1	LAN1	Green	On	Ethernet port 1 linked
			Off	Disconnected
2	LAN2	Green	On	Ethernet port 2 linked
			Off	Disconnected
3	LAN3	Green	On	Ethernet port 3 linked
			Off	Disconnected
4	LAN4	Green	On	Ethernet port 4 linked
			Off	Disconnected
	USB	Green	On	USB linked
			Off	USB disconnected
	VOIP	Green	Blinking	Off hook
			On	VoIP linked
	FXS1	Green	Blinking	New voice message or in calling
			On	Line 1 is registered in the network
			Off	Line 1 is not registered in the network
	FXS2	Green	Blinking	New voice message or in calling
			On	Line 2 is registered in the network
			Off	Line 2 is not registered in the network
	WIFI	Green	Blinking	Transmitting
			On	Connecting
	WPS	Blue	Blinking	WPS Activating
			On	WPS Connected
			Off	No WPS Connection

Rear Panel and Hardware Connections

This chapter describes the proper steps for connecting your cable modem. Please be sure to follow the steps in the sequence outlined below. Failure to do so could result in improper operation or failure of your cable modem.



Step 1:
Connect a cable by feeding the F-connector on the back of the cable modem. Ensure the center conductor of the 75 ohm coaxial cable is inserted directly into the center of the F-connector. Secure the coaxial cable by carefully threading the outer shell of the coaxial cable connector onto the F-connector in a clockwise direction until tight. Be careful not to over-tighten the connector or you may damage either the connector or the cable modem.

Step2: Connect the cable modem to an GbE Ethernet 10/100/1000 Mbps Network using a RJ-45 male-terminated Ethernet cable. This cable modem equips with two Ethernet ports, you can connect two PCs to the cable modem at the same time if necessary.

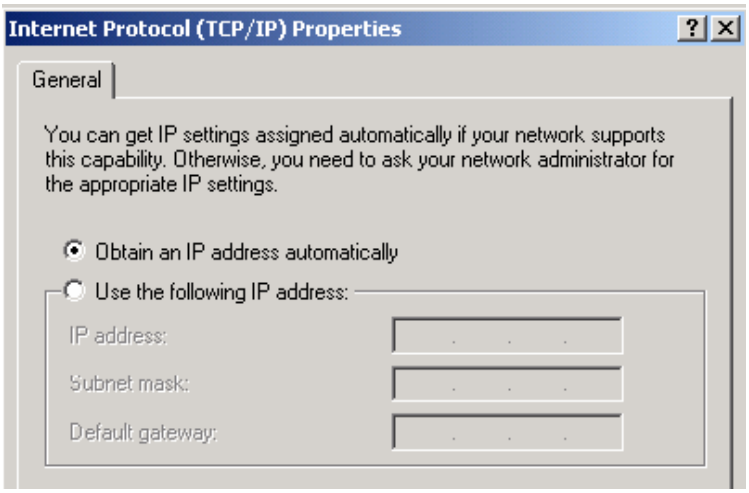
Step 3: Connect the telephone sets to TEL1 and TEL2. Use RJ-11 telephone line to connect TEL1/TEL2 port on the cable modem and telephone socket on telephone.

Step 4: Connect the AC Adapter to the cable modem by inserting the barrel-shaped connector into the mating power connector on the back of the cable modem. Exercise carefully to ensure the connectors are properly aligned prior to insertion and ensure the two connectors engage completely. The cable modem is shipped with an AC adapter. Remember to use only power adapter that came with the cable modem. Other power adapters might have voltages that are not correct for your particular cable modem. Using a power adapter with the wrong voltage can damage the cable modem.

Step 5: Adjust the antenna if necessary.

3. Ethernet Installation

The LAN port you are using is auto-negotiating 10/100Mbps (Switch) Ethernet Interface. You can use the Ethernet port to connect to the Internet with an Ethernet network device such as NIC/Hub/Switch through RJ45.
Before you connect to and install the cable modem, please set the IP address to "Obtain an IP address automatically" as below and do ensure the TCP/IP protocol is installed on your system and configured correctly in your PC.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:

Following is an example of configuring the TCP/IP Protocol on Windows 98 Operating Systems:

1. Click **Start→Settings→Control Panel**. Double click on the **Network** icon click **Properties**.
2. A list of installed network components appears. Look for an entry named TCP/IP. This entry may be followed by an arrow and a description of the NIC hardware device installed in the computer. If you don't see "TCP/IP" listed anywhere in the "The following network components are installed" box, click the **Add** button, choose **Protocol**, and click the **Add** button. Select "Microsoft" as the manufacturer and then scroll down in the list on the right to find "TCP/IP". If you see "TCP/IP" listed, proceed to step 4.
3. Click the **OK** button. You will be prompted to insert the Windows 98 installation/upgrade CD.
4. Scroll down in the box until you find a line that says "TCP/IP -> " followed by the name of your Ethernet adapter. Click on **Properties** and choose "Obtain an address automatically" which means that your PC has been configured to use DHCP (Dynamic Host Configuration Protocol).
5. Click **OK**.

Congratulations! You have successfully set up your cable modem.

4. Installing the USB Driver for Windows Vista / XP / 2003

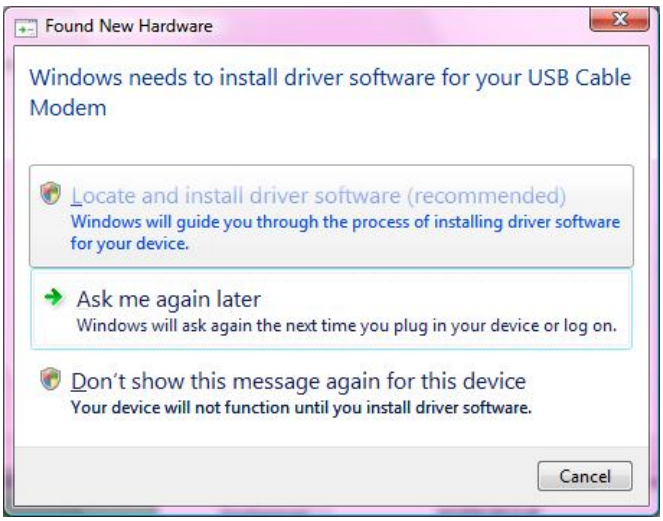
If you connect the Cable Modem to PC via **USB** port, then your will need to install the USB driver. Please follow the description below to install the driver for your PC. If you are connecting the Cable Modem to your PC only using the **Ethernet** port, please skip this section.

1. Connect USB cable from PC to cable modem.

2. Connect RF cable and power on cable modem. Wait until it registers. It will take about 40 seconds to 4 minutes, depending on network traffic. Cable modem may reboot if you previously connect it through Ethernet port.

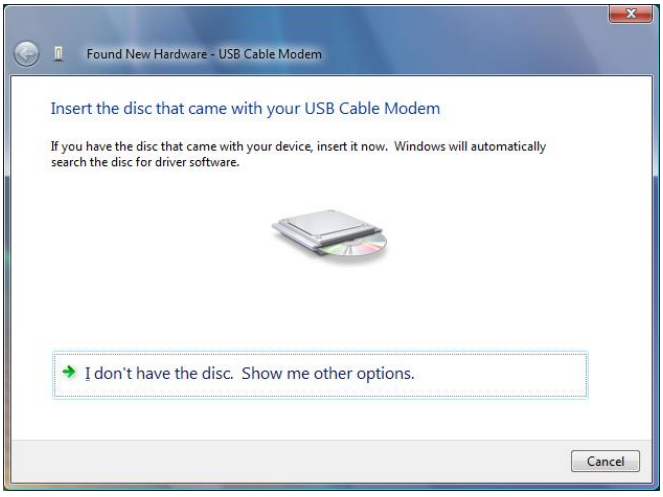
3. Windows will prompt new hardware found. Insert the Driver CD into your CD-ROM drive.

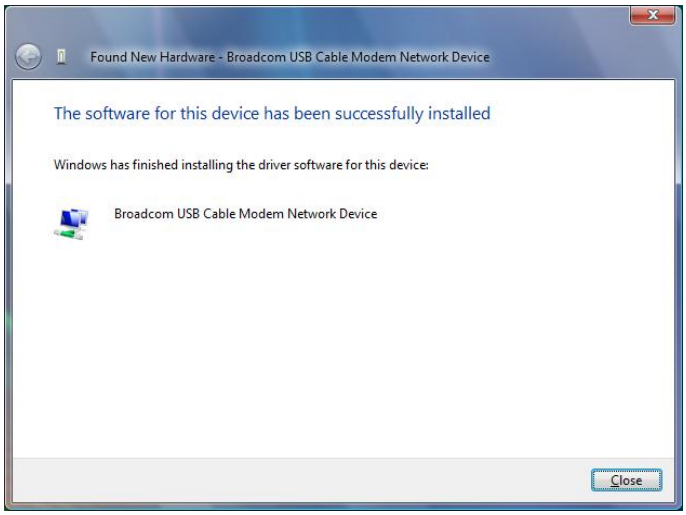
4. You may see the below window if you have inserted your Driver CD into your CD-ROM drive.

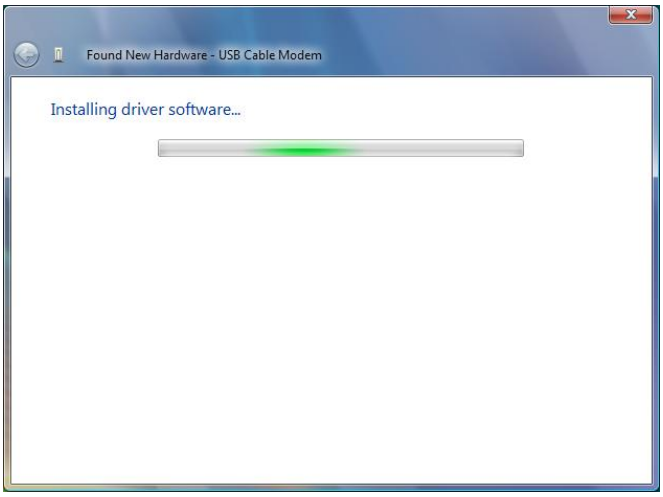

Found New Hardware
Windows needs to install driver software for your USB Cable Modem
Locate and install driver software (recommended)
Windows will guide you through the process of installing driver software for your device.
Ask me again later
Windows will ask again the next time you plug in your device or log on.
Don't show this message again for this device
Your device will not function until you install driver software.
Cancel

5. Select "Install the software automatically (Recommended)" and then click **Next**.

6. Windows will locate the driver automatically. Please click **Continue Anyway** to continue the installation process.


Found New Hardware - USB Cable Modem
Insert the disc that came with your USB Cable Modem
If you have the disc that came with your device, insert it now. Windows will automatically search the disc for driver software.
I don't have the disc. Show me other options.
Cancel


Found New Hardware - Broadcom USB Cable Modem Network Device
The software for this device has been successfully installed
Windows has finished installing the driver software for this device:
Broadcom USB Cable Modem Network Device
Close



7. Windows shall find the location of USB driver and complete the installation. Click **Finish**.

8. For more information, please refer to User's Manual.

5. Web Management

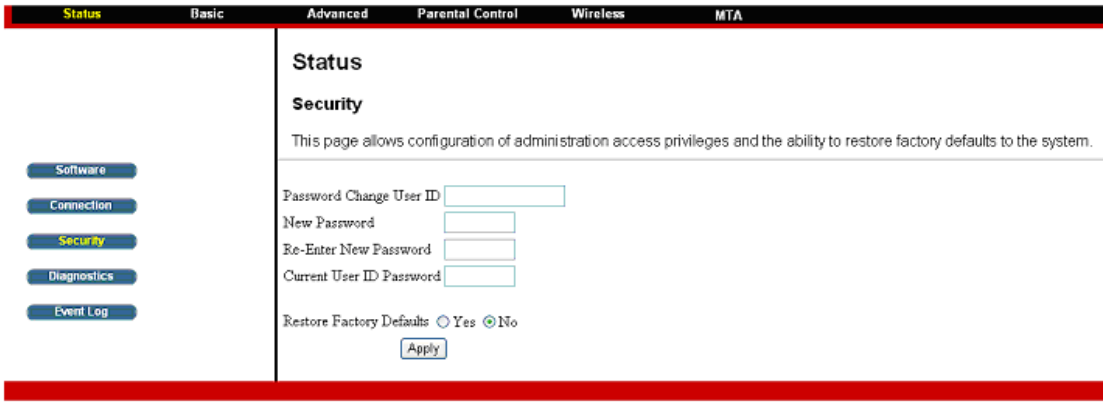
For easy-changing the default setting or quick-checking diagnostics for troubleshooting, a Web-based GUI is built-in for your access.

5.1 Enter Modem's IP address

Use the following procedures to login to your DCM-604.

1. Open your web browser.
   You may get an error message. This is normal. Continue on to the next step.
2. Type the default IP address of the DCM-604 (e.g. **192.168.0.1**) and press Enter.

3. The Log In page appears. Type the user name (**admin**) and your password (**password**) in the respective fields.



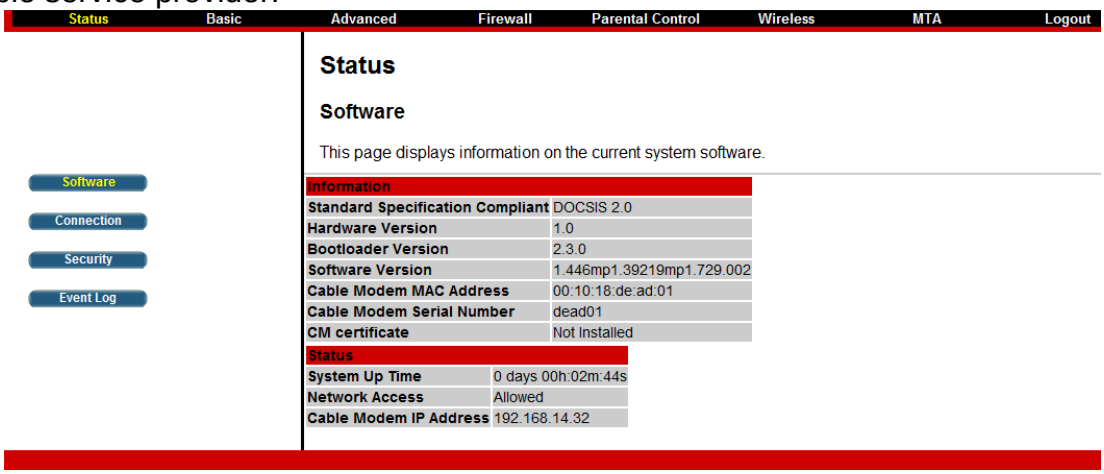
There are seven categories in this web management including Status, Basic, Advanced and Firewall. The following sections describe their details.

5.2 Status

The Status page shows hardware and software information about the DCM-604 that may be useful to your cable service provider.

5.2.1 Software Status

The Software page shows how long the DCM-604 has operated since last being powered up, and some key information the DCM-604 received during the initialization process with your cable service provider.



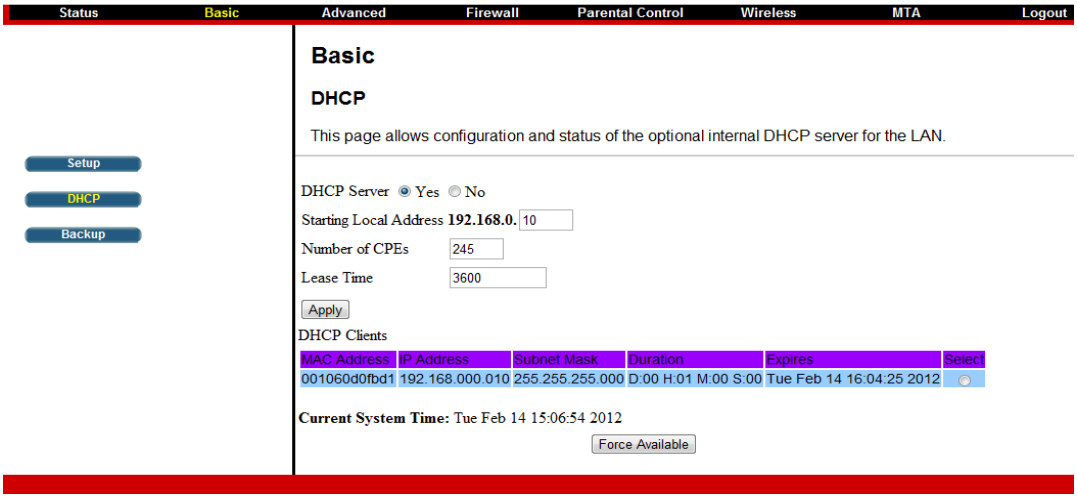
If Network Access shows "Allowed," then your cable service provider has configured the DCM-604 to have Internet connectivity. If Network Access shows otherwise, you may not have Internet access, and please contact your cable service provider for assistance.

5.3 Basic

The Basic page contains the basic features of DCM-604 including Setup, DHCP and Backup

5.3.1 DHCP

The DHCP page allows you to activate/deactivate the DHCP server function of the DCM-604, and, if the DHCP server is activated, to see DHCP leases it has provided.



With this function activated, your cable service provider's DHCP server provides one IP address for the DCM-604, and the DCM-604's DHCP server provides IP addresses, starting at the address you set in **Starting Local Address** field, to your PCs. A DHCP server leases an IP address with an expiration time.
To set the maximum number of PCs to which the DCM-604 will issue IP addresses, enter it in the **Number of CPEs** box and then click **Apply**. (CPE is another term sometimes used for PC.)

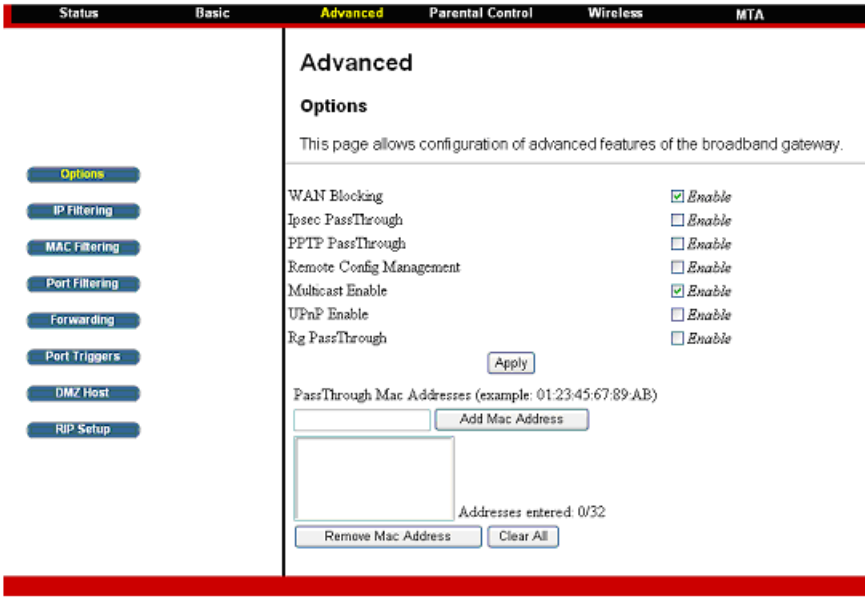
The table on the bottom of this page shows the information of DHCP clients including the IP and MAC addresses of each PC. Since MAC addresses are unique and permanently fixed into hardware, you can identify any PC listed by its MAC address. The DCM-604 provides leases for 3600 seconds (default), and has an automatic renewal mechanism that will keep extending a lease as long as the associated PC remains active.
You can cancel an IP address lease by selecting it in the DHCP Client Lease Info list and then clicking the **Force Available** button. If you do this, you may have to perform a DHCP Renew on that PC, so it can obtain a new lease.

5.4 Advanced

The Advanced page allows you to enable/disable some advanced features of the DCM-604.

5.4.1 Options

The Options page allows you to enable/disable some advanced features supported by DCM-604



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Check the option you want to use and click **Apply** button to enable the function(s).

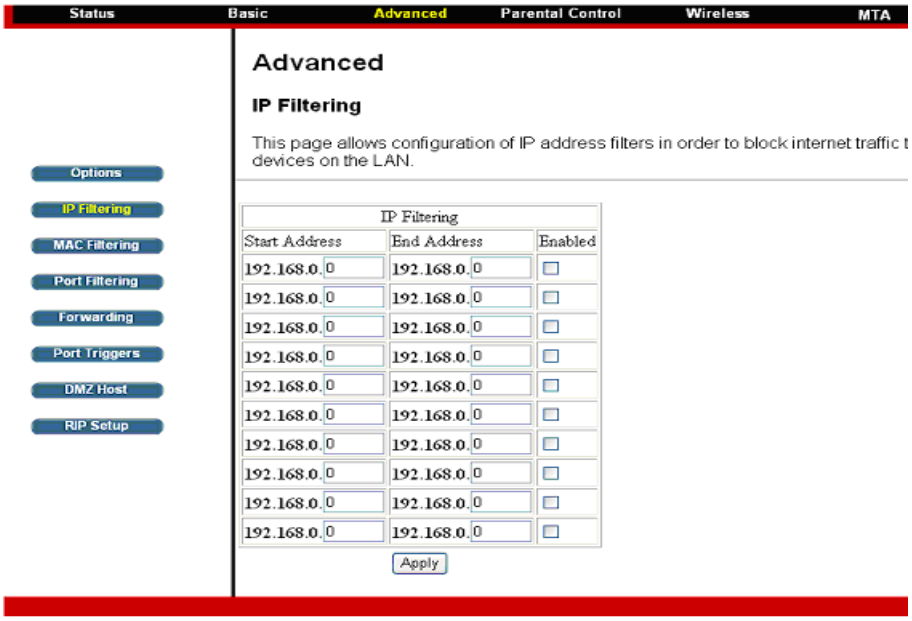
- **WAN Blocking:** To prevent others on the WAN side from being able to ping your DCM-604. With WAN Blocking on, your DCM-604 will not respond to pings it receives, effectively "hiding" your gateway.
- **Ipsec PassThrough:** To enable IpSec type packets to pass through between WAN and LAN.
- **PPTP PassThrough:** To enable PPTP type packets to pass through between WAN and LAN.
- **Remote Config Management:** To make the Web Management pages of your DCM-604 accessible from the WAN side. Page access is limited to only those who know the DCM-604 access password you set in the **Status--Security** page.
  When accessing the DCM-604 from a remote location, you must use HTTP port 8080 and your IP address. This is the "WAN IP address" that appears at the **Basic--Setup**

page. For example, if this IP address were 211.20.15.28, you would navigate to http://211.20.15.28:8080 to reach the DCM-604's Web Management page from a remote location.

- **Multicast Enable:** To enable multicast traffic to pass through between WAN and LAN. You may need to enable this to see some types of broadcast streaming and content on the Internet, such as webcasting of a popular live event.
- **UPnP Enable:** UPnP (Universal Plug and Play) offers pervasive peer-to-peer network connectivity of PCs of all form factors, intelligent appliances, and wireless devices. UPnP architecture leverages TCP/IP and the Web to enable seamless proximity networking in addition to control and data transfer among networked devices in the home, office, and everywhere in between.

5.4.2 IP Filtering

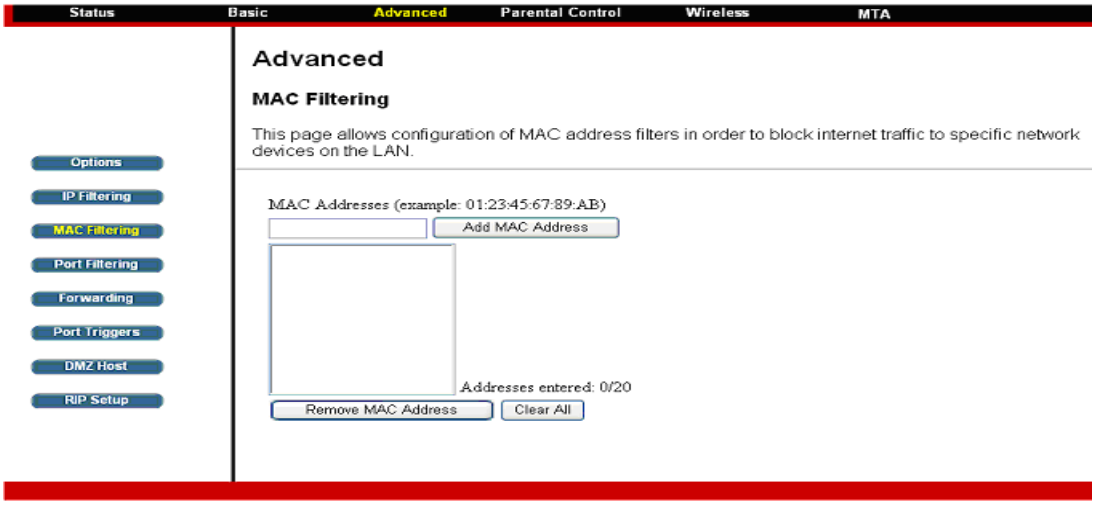
The IP Filtering page enables you to enter the IP address ranges of PCs on your LAN that you don't permit to have outbound access ability to the WAN. These PCs can still communicate with each other on your LAN, but packets they originate to WAN addresses are blocked by the DCM-604.



To enable IP Filtering feature of DCM-604, check the **Enable** box and click **Apply** button.

5.4.3 MAC Filtering

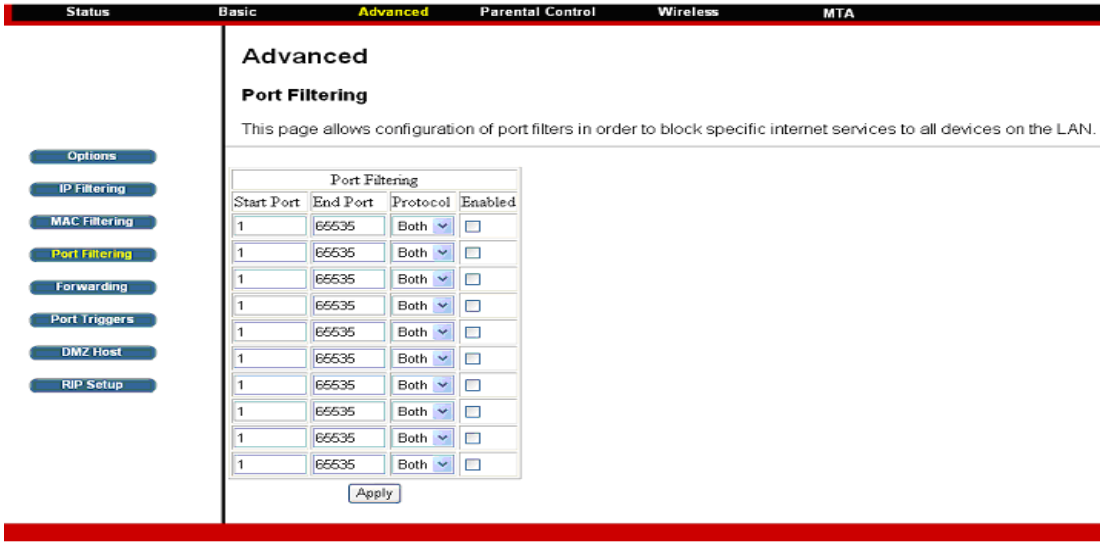
The MAC Filtering page enables you to enter the MAC address of specific PCs on your LAN that you don't permit to have outbound access ability to the WAN. These PCs can still communicate with each other through the DCM-604, but packets they send to WAN addresses are blocked.



To enable MAC filtering feature of DCM-604, enter the MAC address of the LAN device and click **Apply** button.

5.4.4 Port Filtering

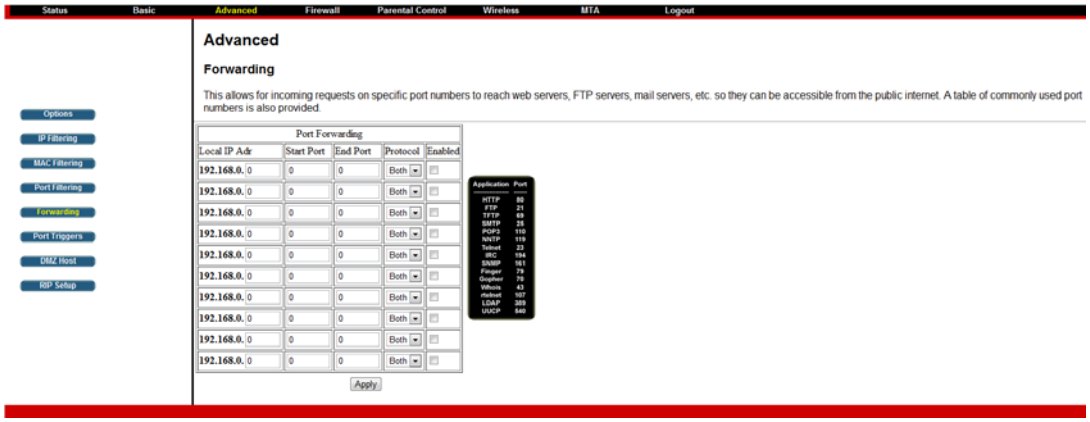
The Port Filtering page allows you to enter ranges of destination ports (applications) that you don't want your LAN PCs to send packets to. Any packets your LAN PCs send to these destination ports will be blocked. For example, you could block access to worldwide web browsing (HTTP port 80) but still allow email service (SMTP port 25 and POP3 port 110).



To enable port filtering, enter the **Start port** and **End port** for each range. Then select its protocol form the drop-down list and check the **Enable** box, and click **Apply** button. To block only one port, set both Start and End ports the same.

5.4.5 Forwarding

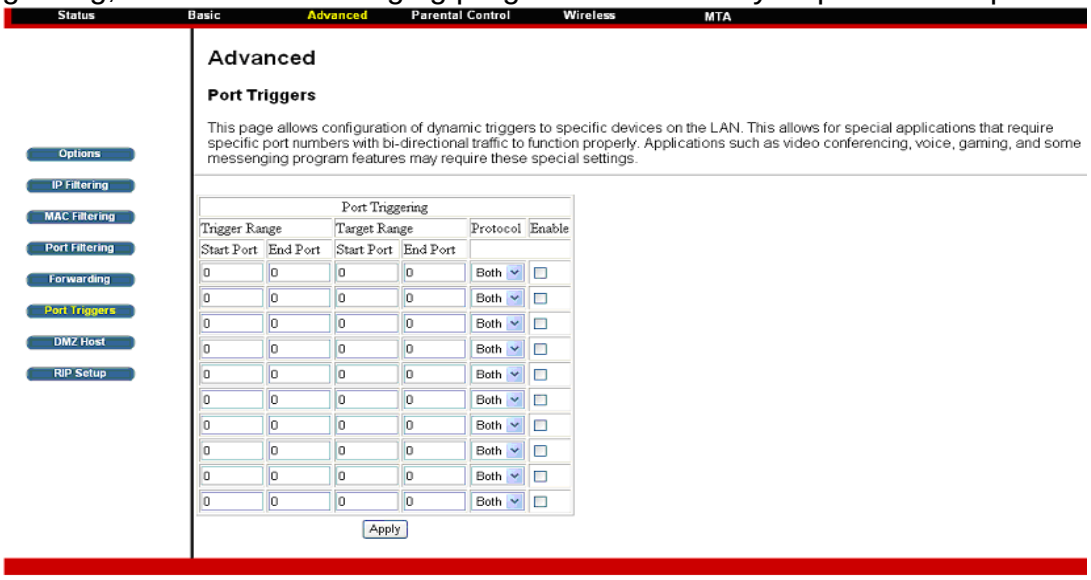
For communications between LAN and WAN, the DCM-604 normally only allows you to originate an IP connection with a PC on the WAN; it will ignore attempts of the WAN PC to originate a connection onto your PC. This protects you from malicious attacks from outsiders. However, sometimes you may wish for anyone outside to be able to originate a connection to a particular PC on your LAN if the destination port (application) matches one you specify.
The Forwarding page allows you to specify up to 10 rules.



Using the Port Forwarding page, you can provide local services (web servers, FTP servers, mail servers, etc) for people on the Internet or play Internet games. A table of commonly used port numbers is also provided.

5.4.6 Port Triggers

The Port Triggers page allows you to configure dynamic triggers to specific devices on the LAN. This allows for special applications that require specific port numbers with bi-directional traffic to function properly. Applications such as video conferencing, voice, gaming, and some messenging program features may require these special settings.

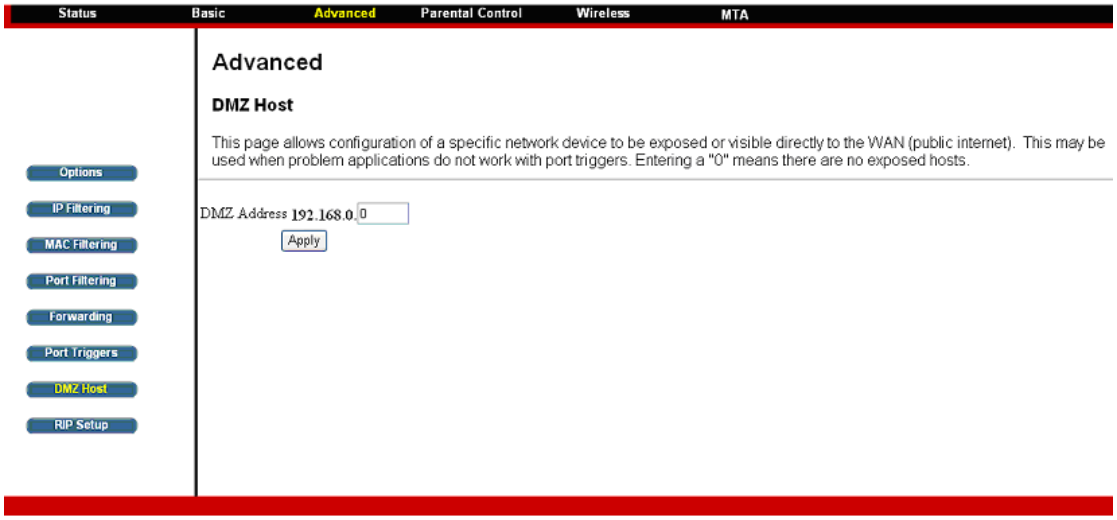


Port Triggering is an elegant mechanism that does the forwarding for you, each time you play the game.
You can specify up to 10 port ranges on which to trigger.

5.4.7 DMZ Host

The DMZ page allows you to configure a specific network device to be exposed or visible directly to the WAN (public Internet). Setting a host on your local network as demilitarized zone (DMZ) forwards any network traffic that is not redirected to another host via the port forwarding feature to the IP address of the host (PC). This designates one PC on your LAN that should be left accessible to all PCs from the WAN side for all ports. For example,

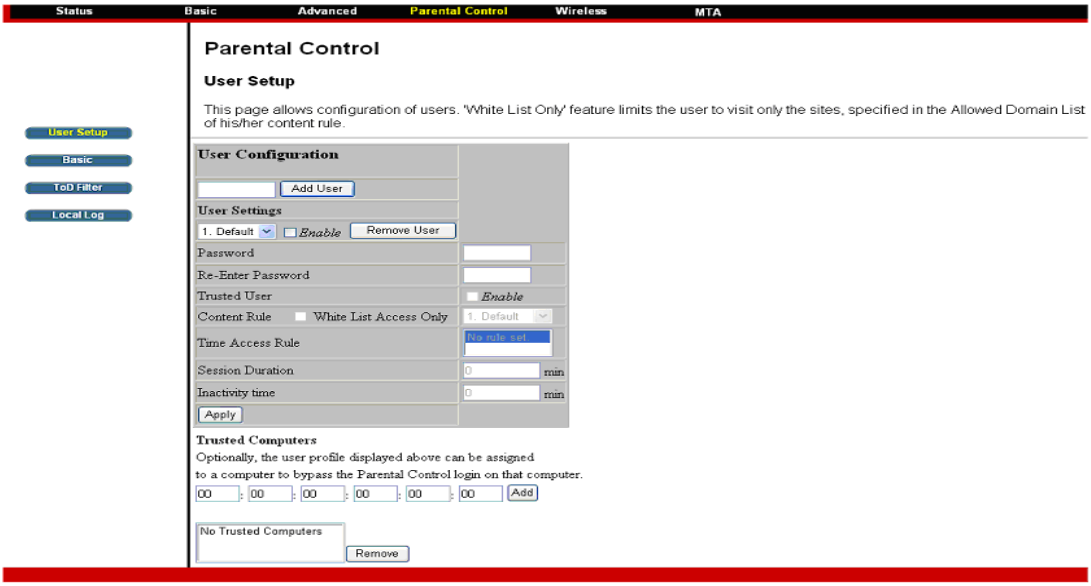
if you locate a HTTP server on this machine, anyone will be able to access that HTTP server by using your DCM-604's IP address as the destination. This may be used when problem applications do not work with port triggers. The setting of "0" indicates NO DMZ PC.



5.5 Parental Control

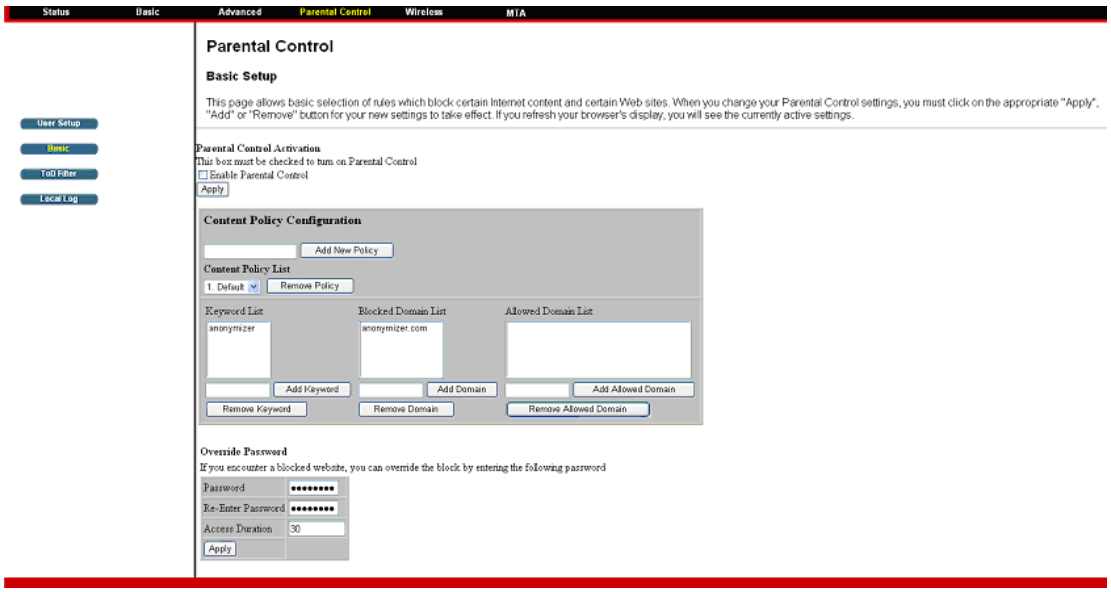
5.5.1 User Setup

This page allows configuration of users. "White List Only" feature limits the user to visit only the sites, specified in the Allowed Domain List of his/her content rule.



5.5.2 Basic Setup

This page allows basic selections of rules which block certain Internet content and certain Web sites. When you change your Parental Control settings, you must click on the appropriate "Apply", "Add" or "Remove" button for your new setting to take effect. If you refresh your browser's display, you will see the currently active settings.



5.5.3 Time of Day Access Policy

This page allows configuration of time access policies to block all internet traffic to and from specific network devices based on time of day setting.

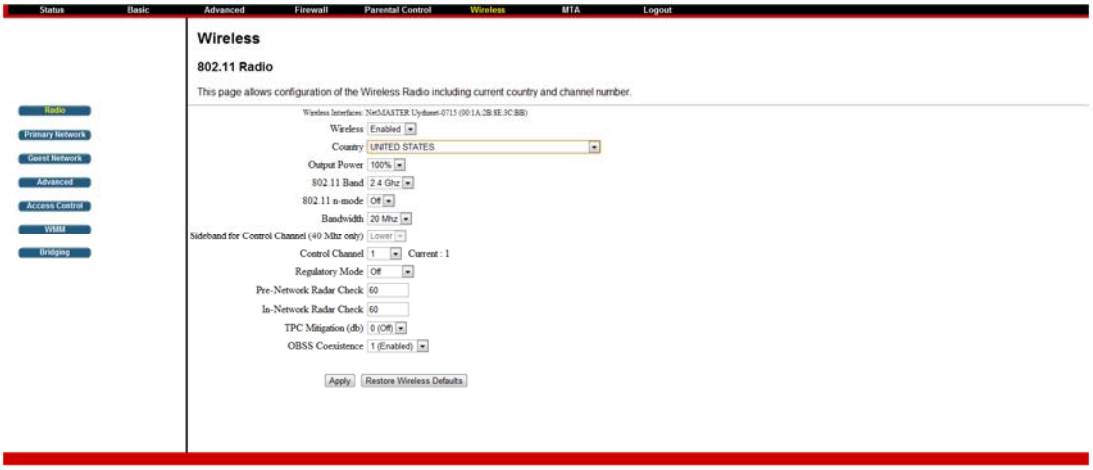
5.5.4 Event Log

This page displays Parental Control event log reporting.

5.6 Wireless

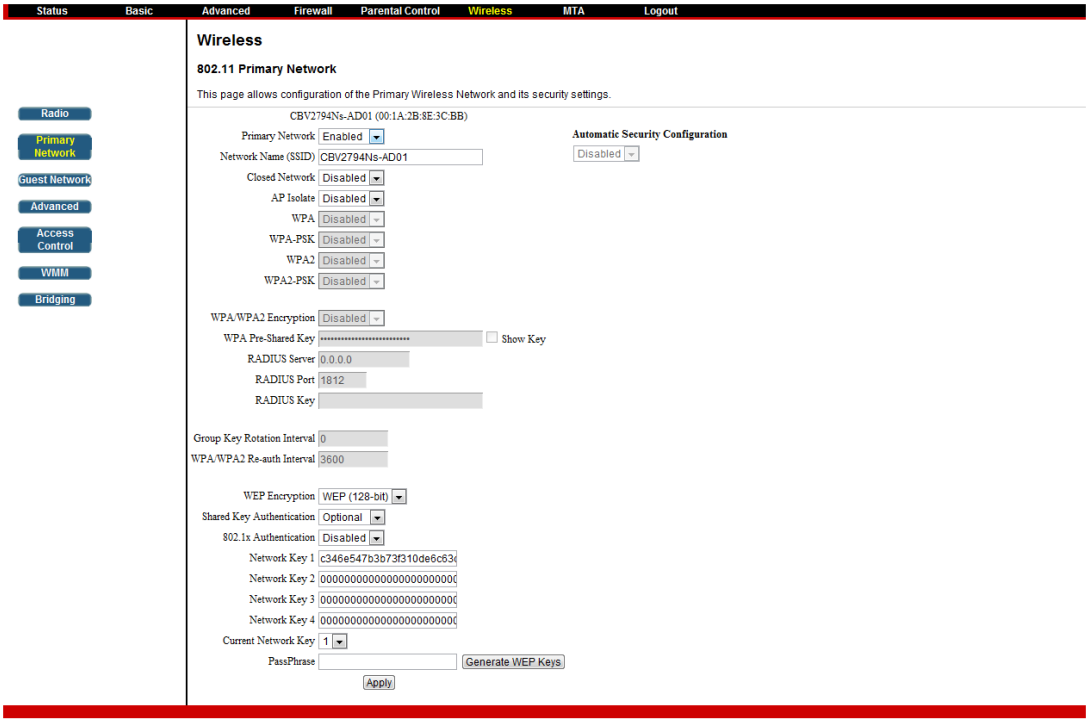
5.6.1 Radio

The Wireless Connection Stage Configuration of the Wireless Radio includes current country and channel number.



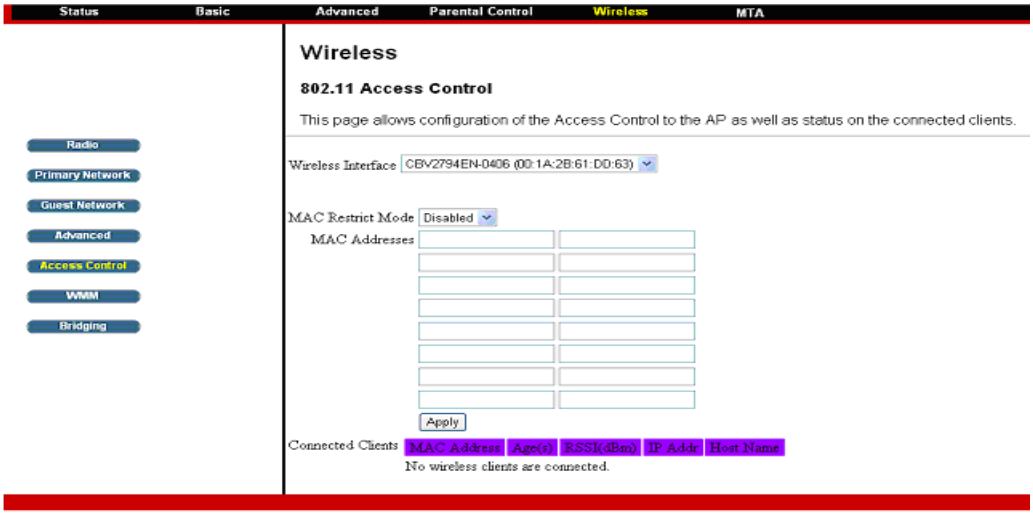
5.6.2 802.11 Primary Network

The 802.11 Primary Network allows configuration of the Primary Wireless Network and its security settings.



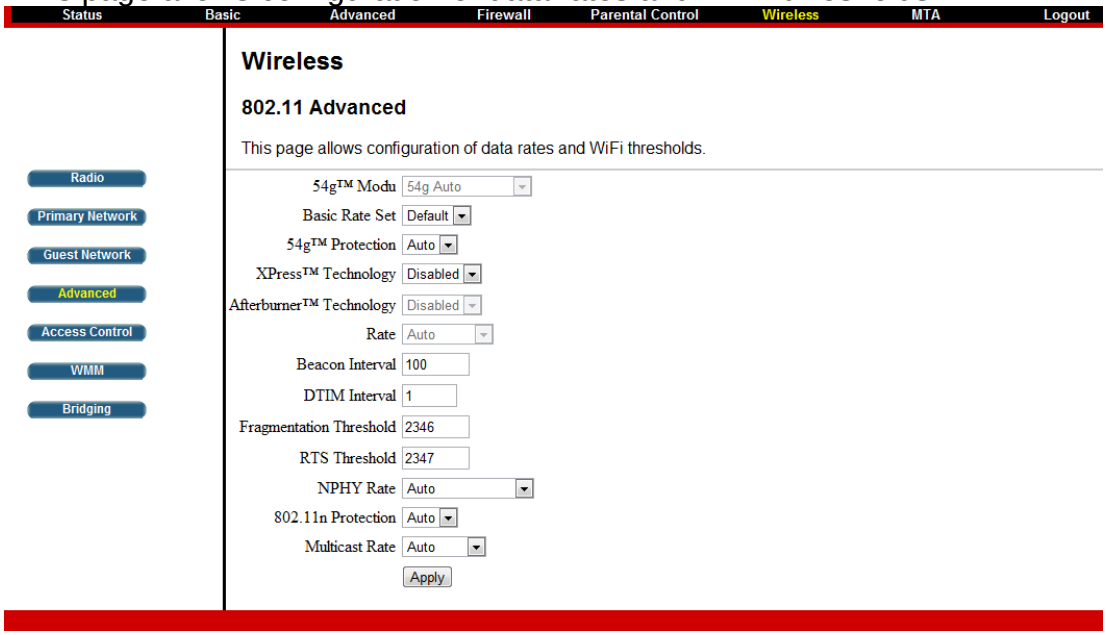
5.6.3 Access Control

This page allows configuration of the Access Control to the AP as well as on the connected clients.



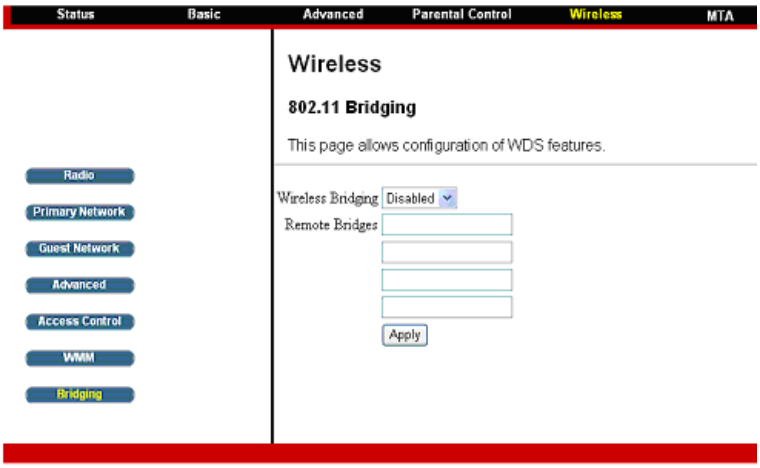
5.6.4 Advanced

This page allows configuration of data rates and WiFi thresholds.



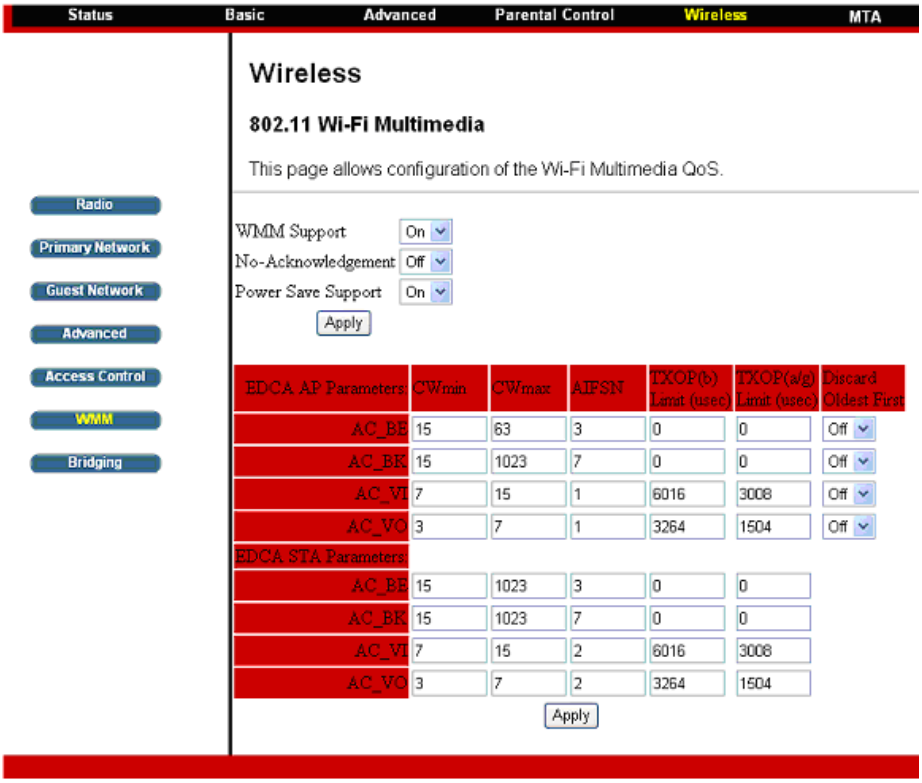
5.6.5 Bridging

This page allows configuration of WDS features.



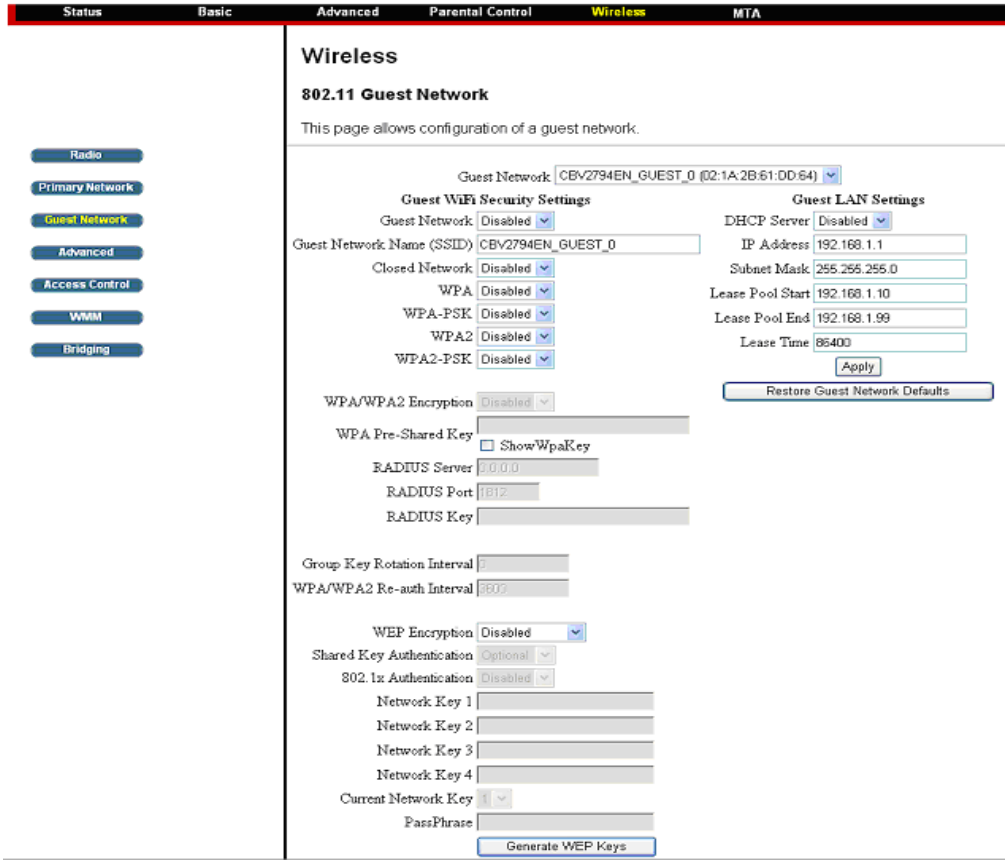
5.6.6 WMM

This page allows configuration of the Wi-Fi Multimedia QoS.



5.6.7 Guest Network

This page allows configuration of a guest network..

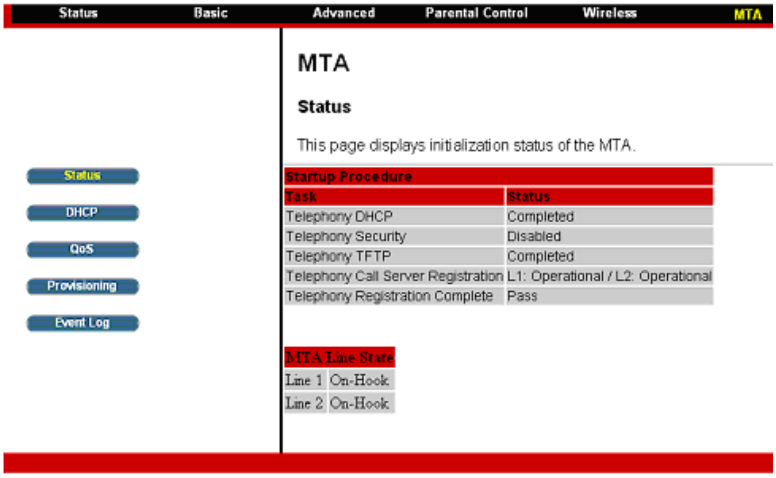


5.7 MTA

Section MTA has 5 sub-items, which indicate the status of MTA. These information can help you to understand the parameters of MTA operation.

5.7.1 Status

This page displays initialization status of the MTA.



6. Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DCM-604. Read the following descriptions if you are having problems. (The examples below are illustrated in Windows® XP. If you have a different operating system, the screenshots on your computer will look similar to the following examples.)

1. Why can't I access the web-based configuration utility?
When entering the IP address of the D-Link router (192.168.0.1 for example), you are not connecting to a website on the Internet or have to be connected to the Internet. The device has the utility built-in to a ROM chip in the device itself. Your computer must be on the same IP subnet to connect to the web-based utility.

• Make sure you have an updated Java-enabled web browser. We recommend the following:
- Internet Explorer 6.0 or higher
- Netscape 8 or higher
- Mozilla 1.7.12 (5.0) or higher
- Opera 8.5 or higher
- Safari 1.2 or higher (with Java 1.3.1 or higher)
- Camino 0.8.4 or higher
- Firefox 1.5 or higher

• Verify physical connectivity by checking for solid link lights on the device. If you do not get a solid link light, try using a different cable or connect to a different port on the device if possible. If the computer is turned off, the link light may not be on.

• Disable any internet security software running on the computer. Software firewalls such as Zone Alarm, Black Ice, Sygate, Norton Personal Firewall, and Windows® XP firewall may block access to the configuration pages. Check the help files included with your firewall software for more information on disabling or configuring it.

- Configure your Internet settings:
  • Go to Start > Settings > Control Panel. Double-click the Internet Options Icon. From the Security tab, click the button to restore the settings to their defaults.
  • Click the Connection tab and set the dial-up option to Never Dial a Connection. Click the LAN Settings button. Make sure nothing is checked. Click OK.
  • Go to the Advanced tab and click the button to restore these settings to their defaults. Click OK three times.
  • Close your web browser (if open) and open it.

• Access the web management. Open your web browser and enter the IP address of your D-Link router in the address bar. This should open the login page for your the web management.

• If you still cannot access the configuration, unplug the power to the router for 10 seconds and plug back in. Wait about 30 seconds and try accessing the configuration. If you have multiple computers, try connecting using a different computer.

2. What can I do if I forgot my password?
If you forgot your password, you must reset your router. Unfortunately this process will change all your settings back to the factory defaults.

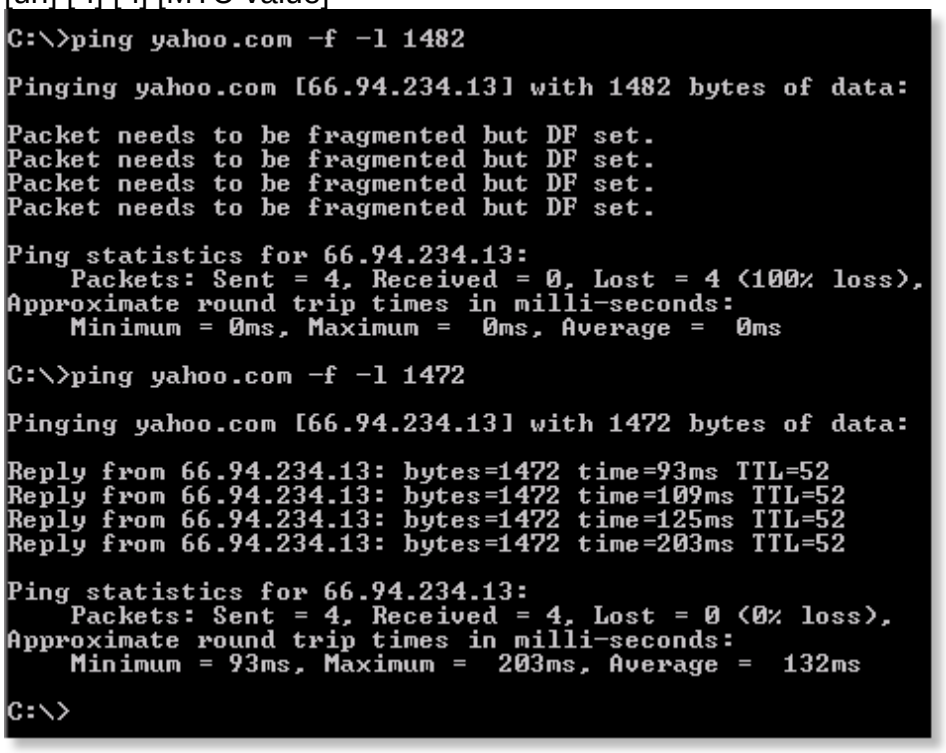
To reset the router, locate the reset button (hole) on the rear panel of the unit. With the router powered on, use a paperclip to hold the button down for 10 seconds. Release the button and the router will go through its reboot process. Wait about 30 seconds to access the router. The default IP address is 192.168.0.1. When logging in, the username is "admin" and the password is "password".

3. Why can't I connect to certain sites or send and receive emails when connecting through my router?
If you are having a problem sending or receiving email, or connecting to secure sites such as eBay, banking sites, and Hotmail, we suggest lowering the MTU in increments of ten (Ex. 1492, 1482, 1472, etc).

Note: AOL DSL+ users must use MTU of 1400.

To find the proper MTU Size, you'll have to do a special ping of the destination you're trying to go to. A destination could be another computer, or a URL.

• Click on Start and then click Run.
• Windows® 95, 98, and Me users type in command (Windows® NT, 2000, and XP users type in cmd) and press Enter (or click OK).
• Once the window opens, you'll need to do a special ping. Use the following syntax: ping [url] [-f] [-l] [MTU value]


C:\>ping yahoo.com -f -l 1482
Pinging yahoo.com [66.94.234.13] with 1482 bytes of data:
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Packet needs to be fragmented but DF set.
Ping statistics for 66.94.234.13:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping yahoo.com -f -l 1472
Pinging yahoo.com [66.94.234.13] with 1472 bytes of data:
Reply from 66.94.234.13: bytes=1472 time=93ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=109ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=125ms TTL=52
Reply from 66.94.234.13: bytes=1472 time=203ms TTL=52
Ping statistics for 66.94.234.13:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 93ms, Maximum = 203ms, Average = 132ms
C:\>

Example: **ping yahoo.com -f -l 1472**

You should start at 1472 and work your way down by 10 each time. Once you get a reply, go up by 2 until you get a fragmented packet. Take that value and add 28 to the value to account for the various TCP/IP headers. For example, lets say that 1452 was the proper value, the actual MTU size would be 1480, which is the optimum for the network we're working with (1452+28=1480).

Once you find your MTU, you can now configure your router with the proper MTU size.

To change the MTU rate on your router follow the steps below:

- Open your browser, enter the IP address of your router (192.168.0.1) and click OK.
- Enter your username (admin) and password (password). Click OK to enter the web configuration page for the device.
- Click on Setup and then click Manual Configure.
- To change the MTU enter the number in the MTU field and click Save Settings to save your settings.
- Test your email. If changing the MTU does not resolve the problem, continue changing the MTU in increments of ten.

Appendix: Cable Modem Specification

Table 1. RF Downstream Specification (DOCSIS)

Parameter	Value	Notes
Frequency range	88 MHz to 860 MHz +/- 30 kHz	
Demodulation	64QAM. 256QAM	
Input power range	-15 dBmV to +15 dBmV	One Channel
Symbol Rate	5.056941 Msym/sec (30 Mbps) 5.360537 Msym/sec (43 Mbps)	64QAM 256QAM
Bandwidth	6 MHz	
Total Input Power	<30 dBmV	
Input Impedance	75 Ohms	

Table 2. RF Upstream Specification (DOCSIS)

Parameter	Value	
Frequency Range	5 MHz to 42 MHz	
Modulation	QPSK, 8QAM, 16QAM, 32QAM, 64QAM, 128QAM (SCDMA only)	
Symbol Rate	**TDMA**: 160K, 320K, 640K, 1280K, 2560K, 5120Ksym/sec **S-CDMA**: 1280K, 2560K, 5120Ksym/sec	
Bandwidth	TDMA: 200K, 400K, 800K, 1600K, 3200K, 6400KHz S-CDMA: 1600K, 3200K, 6400KHz	
Output power	TDMA	QPSK: 8 ~ 58 dBmV 8/16QAM: 8 ~ 55 dBmV 32/64QAM: 8 ~ 54 dBmV
	S-CDMA	QPSK, 8/16/32/64/128QAM: 8 ~ 53 dBmV
Output Impedance	75 Ohms	

Table 3. RF Downstream Specification (for EuroDOCSIS system)

Parameter	Value	Notes
Frequency Range	108 MHz to 862 MHz	
Demodulation	64QAM. 256QAM	
Input power range	+13dBmV to -17dBmV (65QAM) +17dBmV to -13dBmV (256QAM)	
Symbol Rate	056941 Msym/sec (30 Mbps) 5.360537 Msym/sec (43 Mbps)	64QAM 256QAM
Bandwidth	8MHz	
Total Input Power	<30 dBmV	
Input Impedance	75 Ohms	

Table 4. RF Upstream Specification (for EuroDOCSIS system)

Parameter	Value	
Frequency Range	5 MHz to 65 MHz	
Modulation	QPSK, 8QAM, 16QAM, 32QAM, 64QAM, 128QAM (TCM only)	
Symbol Rate	**TDMA**: 160K, 320K, 640K, 1280K, 2560K, 5120Ksym/sec **S-CDMA**: 1280K, 2560K, 5120Ksym/sec	
Bandwidth	TDMA: 200K, 400K, 800K, 1600K, 3200K, 6400KHz S-CDMA: 1600K, 3200K, 6400KHz	
Output power	TDMA	QPSK: 8 ~ 58 dBmV 8/16QAM: 8 ~ 55 dBmV 32/64QAM: 8 ~ 54 dBmV
	S-CDMA	QPSK, 8/16/32/64/128QAM: 8 ~ 53 dBmV
Output Impedance	75 Ohms	

Table 5. Electrical Specification

Parameter	Measured Value	Notes
Input Voltage	12VDC	
Power consumption	< 8.7W	With AC adaptor

Table 6. Physical Specification

Parameter	Value
Size	228mm (L) x 160 mm (W) x 41 mm (H)
Weight	Net Weight: 470g +/- 10g

Table 7. Environmental Specification

Parameter	Value
Operating Temperature	0 °C to +40 °C
Operating Relative Humidity	10% to 90% (Non-condensing)
Operating Altitude	-100 to +7,000 feet
Storage Temperature	-10 °C to +60 °C

Wireless Basics

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. Strictly adhering to the IEEE standard, the D-Link wireless family of products will allow you to securely access the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking delivers.

A wireless local area network (WLAN) is a cellular computer network that transmits and receives data with radio signals instead of wires. Wireless LANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same applications they use on a wired network. Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards.

Under many circumstances, it may be desirable for mobile network devices to link to a conventional Ethernet LAN in order to use servers, printers or an Internet connection supplied through the wired LAN. A Wireless Router is a device used to provide this link.

What is Wireless?
Wireless or Wi-Fi technology is another way of connecting your computer to the network without using wires. Wi-Fi uses radio frequency to connect wirelessly, so you have the freedom to connect computers anywhere in your home or office network.

Why D-Link Wireless?
D-Link is the worldwide leader and award winning designer, developer, and manufacturer of networking products. D-Link delivers the performance you need at a price you can afford. D-Link has all the products you need to build your network.

How does wireless work?
Wireless works similar to how cordless phone work, through radio signals to transmit data from one point A to point B. But wireless technology has restrictions as to how you can access the network. You must be within the wireless network range area to be able to connect your computer. There are two different types of wireless networks Wireless Local Area Network (WLAN), and Wireless Personal Area Network (WPAN).

Wireless Local Area Network (WLAN)
In a wireless local area network, a device called an Access Point (AP) connects computers to the network. The access point has a small antenna attached to it, which allows it to transmit data back and forth over radio signals. With an indoor access point as seen in the picture, the signal can travel up to 300 feet. With an outdoor access point the signal can reach out up to 30 miles to serve places like manufacturing plants, industrial locations, college and high school campuses, airports, golf courses, and many other outdoor venues.

Wireless Personal Area Network (WPAN)
Bluetooth is the industry standard wireless technology used for WPAN. Bluetooth devices in WPAN operate in a range up to 30 feet away.

Compared to WLAN the speed and wireless operation range are both less than WLAN, but in return it doesn't use nearly as much power which makes it ideal for personal devices, such as mobile phones, PDAs, headphones, laptops, speakers, and other devices that operate on batteries.

Who uses wireless?
Wireless technology as become so popular in recent years that almost everyone is using it, whether it's for home, office, business, D-Link has a wireless solution for it.

Home
• Gives everyone at home broadband access
• Surf the web, check email, instant message, and etc
• Gets rid of the cables around the house
• Simple and easy to use

Small Office and Home Office
• Stay on top of everything at home as you would at office
• Remotely access your office network from home

• Share Internet connection and printer with multiple computers
• No need to dedicate office space

Where is wireless used?
Wireless technology is expanding everywhere not just at home or office. People like the freedom of mobility and it's becoming so popular that more and more public facilities now provide wireless access to attract people. The wireless connection in public places is usually called "hotspots".

Using a D-Link Cardbus Adapter with your laptop, you can access the hotspot to connect to Internet from remote locations like: Airports, Hotels, Coffee Shops, Libraries, Restaurants, and Convention Centers.

Wireless network is easy to setup, but if you're installing it for the first time it could be quite a task not knowing where to start. That's why we've put together a few setup steps and tips to help you through the process of setting up a wireless network.

Tips
Here are a few things to keep in mind, when you install a wireless network.

Centralize your router or Access Point
Make sure you place the router/access point in a centralized location within your network for the best performance. Try to place the router/access point as high as possible in the room, so the signal gets dispersed throughout your home. If you have a two-story home, you may need a repeater to boost the signal to extend the range.

Eliminate Interference
Place home appliances such as cordless telephones, microwaves, and televisions as far away as possible from the router/access point. This would significantly reduce any interference that the appliances might cause since they operate on same frequency.

Security
Don't let your next-door neighbors or intruders connect to your wireless network. Secure your wireless network by turning on the WPA or WEP security feature on the router. Refer to product manual for detail information on how to set it up.

Wireless Modes
There are basically two modes of networking:

• Infrastructure – All wireless clients will connect to an access point or wireless router.
• Ad-Hoc – Directly connecting to another computer, for peer-to-peer communication, using wireless network adapters on each computer, such as two or more DCM-604 wireless network Cardbus adapters.

An Infrastructure network contains an Access Point or wireless router. All the wireless devices, or clients, will connect to the wireless router or access point.

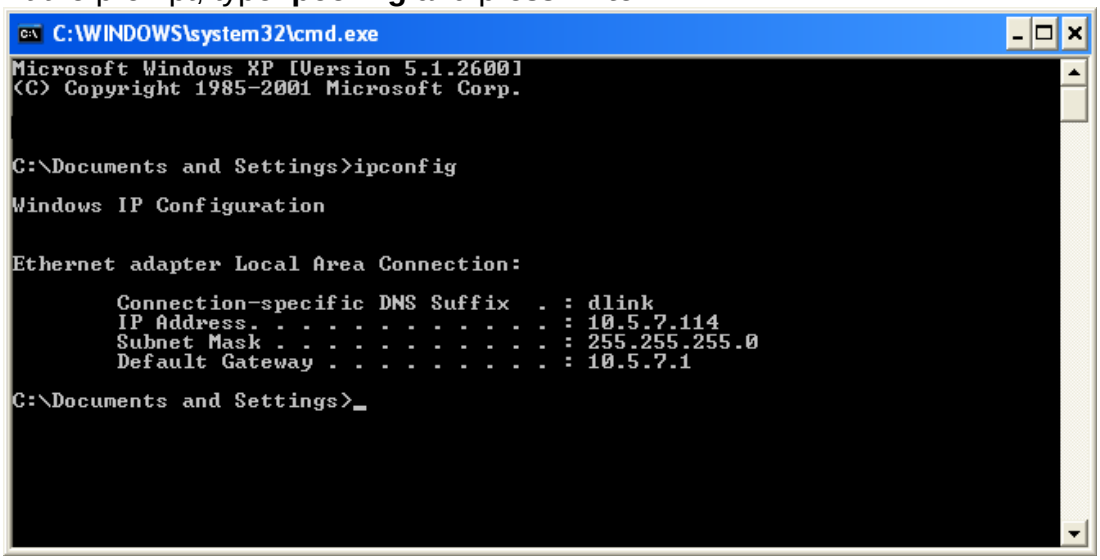
An Ad-Hoc network contains only clients, such as laptops with wireless cardbus adapters. All the adapters must be in Ad-Hoc mode to communicate.

Networking Basics

Check your IP address
After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

Click on **Start** > **Run**. In the run box type **cmd** and click **OK.** (Windows® Vista users type cmd in the **Start Seach** box.)

At the prompt, type **ipconfig** and press **Enter**.


C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings>ipconfig
Windows IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . : dlink
IP Address. . . . . : 10.5.7.114
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.5.7.1
C:\Documents and Settings>

This will display the IP address, subnet mask, and the default gateway of your adapter.

If the address is 0.0.0.0, check your adapter installation, security settings, and the settings on your router. Some firewall software programs may block a DHCP request on newly installed

Statically Assign an IP address

If you are not using a DHCP capable gateway/router, or you need to assign a static IP address, please follow the steps below:

Step 1
Windows® Vista - Click on **Start** > **Control Panel** > **Network and Internet** > **Network and Sharing Center** > **Manage Network Connections.**
Windows® XP - Click on **Start** > **Control Panel** > **Network Connections**.
Windows® 2000 - From the desktop, right-click **My Network Places** > **Properties**.

Step 2
Right-click on the **Local Area Connection** which represents your network adapter and select **Properties**.

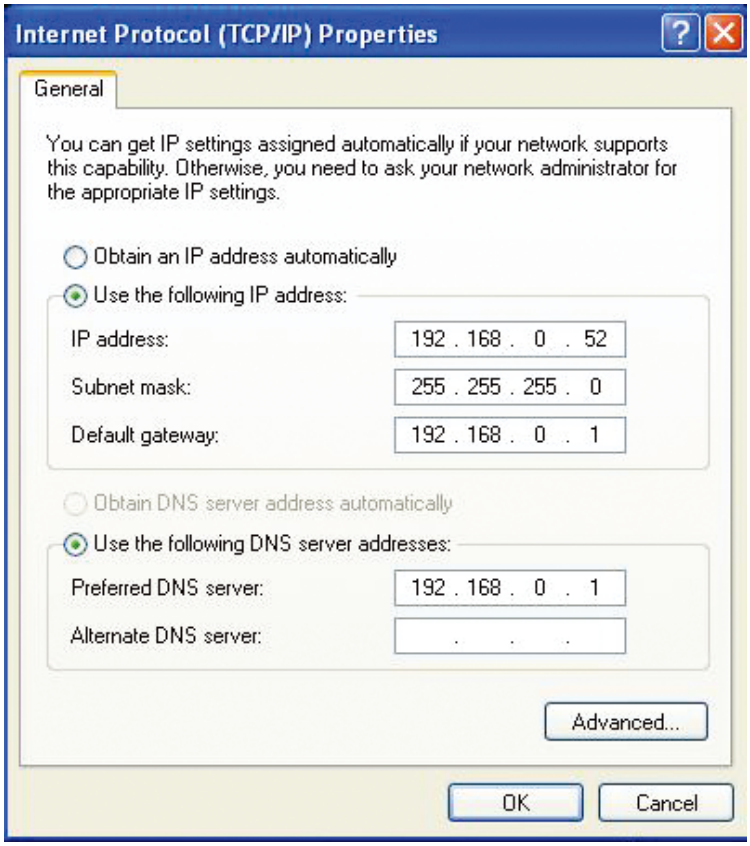
Step 3
Highlight **Internet Protocol (TCP/IP)** and click **Properties**.

Step 4
Click **Use the following IP address** and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

Example: If the router´s LAN IP address is 192.168.0.1, make your IP address 192.168.0.X where X is a number between 2 and 99. Make sure that the number you choose is not in use on the network. Set Default Gateway the same as the LAN IP address of your router (192.168.0.1).

Set Primary DNS the same as the LAN IP address of your router (192.168.0.1). The Secondary DNS is not needed or you may enter a DNS server from your ISP.

Step 5
Click **OK** twice to save your settings.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 0 . 52
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 0 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 192 . 168 . 0 . 1
Alternate DNS server:
Advanced...
OK
Cancel

Resolução 506

"Esse equipamento opera em carater secundário, isto é, não tem direito à proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário."